

Appl. S.N. 10/065,892
Reply to Office Action of December 14, 2007

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REMARKS/ARGUMENTS

This amendment is responsive to the Office Action mailed December 14, 2007. In the Office action, claims 1, 6, 7, 11, 12, 15, 16, 19-21 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting over claims 1, 6, 7, 9, 10, 11 and 14 of co-pending Appl. No. 10/617543 ('543 application), claims 1-4, 7, 9-14, 18, 20, 21, 23, 28, 29, 32-33 were rejected under 35 USC §102 (b) as being anticipated by Bartzokis et al. (US 5322682); claims 5, 15-17, 24-27 were rejected under 35 USC §103 (a) on Bartzokis in view of Sibbitt (US 6385479); and claims 6, 8, 19, 22, 30 and 31 were rejected under 35 USC §103 (a) on Bartzokis. In this amendment, claims 1, 11, 15 and 28 were amended. Claims 9 and 18 were canceled. No new matter has been added. Claims 1-8, 10-17 and 19-33 remain pending in this application. Reconsideration in light of the above amendments and the following remarks is respectfully requested.

Briefly, Applicants' representative explained that the Bartzokis reference requires that two separate MRI scans be performed in order to determine quantitative levels of iron deposits whereas in Applicants' invention only a single MRI scan is required. The Examiner stated that a further limitation regarding data analysis may be required to overcome the Bartzokis reference. Applicants have carefully amended independent claims 1, 11 and 18 in view of the interview and Examiner's suggestions.

With respect to the provisional rejection of claims 1, 6, 7, 11, 12, 15, 16, 19-21 on the ground of nonstatutory obviousness-type double patenting, Applicants request that the Examiner continue to hold the double-patenting rejection in abeyance until the co-pending application Appl. No. 10/617543 has been fully examined. Applicant is fully prepared to properly file a Terminal Disclaimer to overcome the nonstatutory double-patenting rejection because the co-pending application is commonly owned. However, Appl. No. 10/617543 is currently under Appeal and a decision has not yet been rendered by the Board of Appeals, is the later filed application relative to the present applicant and therefore Applicants feel it would be premature to file a Terminal Disclaimer until the '543 has been examined on its merits. Applicants respectfully request that these remarks will be considered fully responsive to this rejection at this time.

Claims 1, 11, 15 and 28 have been amended to more clearly recite Applicants' invention and now recite acquiring *a single magnetic resonance (MR) image data set* at a substantially high magnetic field strength and each further recite *analyzing or characterizing regions of interest within the single MR image data set* having statistically relevant quantities of brain iron deposits to indicate a given disease. No new matter has been added.

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As amended, Applicants' independent claims recite a method or system adapted to readily characterize regions of interest having iron deposits in a single MRI scan, and more particularly brain iron deposits. As indicated in Applicants' specification, brain iron deposits are characteristic of a number of neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease, etc.. As such, it is desirable to readily examine such a patient undergoing a scan for brain iron deposits. In Applicants' recited invention, a single MRI scan is used to obtain a single image data set of a region of interest, **and that image data set** is analyzed or characterized based on at least one parameter in order to generate a data representation of a volume indicating extent of brain iron deposits.

The rejection of Claims 1-4, 7, 9-14, 18, 20, 21, 23, 28, 29, 32-33 under 35 USC §102 (b) on Bartzokis is respectfully traversed. The present invention, as claimed in independent Claims 1, 11 and 28 is patentable over the Bartzokis reference. "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983).

The Bartzokis reference does not disclose each element of the present invention as claimed in claims 1, 11 and 28. Specifically, the Bartzokis reference does not teach or suggest acquiring by a single magnetic resonance (MR) image data set at a substantially high magnetic field strength and thereafter analyzing that image data set as recited for statistically relevant quantities of iron in order to indicate a given disease. By contrast, the Bartzokis reference teaches taking MR images at two different field strengths and subtracting T2s obtained from two separate field strengths for use in a measure of iron stores. On page 4 of the subject Office Action, the Examiner directed Applicants to Bartzokis column 5, lines 57-69 "for further support of how a complete data set is taken at only one magnetic field strength". Applicants submit that column 5, lines 57-69 of Bartzokis states:

Therefore, according to the invention an MRI scan may be made and recorded for a section of tissue, such as the human brain. If desired, the measured values of T₂ can be graphically displayed in terms of a gray scale at each point in the brain section as an intermediate result. Thereafter, a second scan at the same section is made at different field strength and recorded. The second scan can also be displayed as an intermediate result if desired. The two recorded scans of T₂ are then point-by-point or structure-by-structure differenced to obtain a quantitative and enhanced image, T₂, which is specific to ferritin concentrations. (emphasis added)

Thus, Bartzokis requires a first and a second scan whereby the two scans are then point-by-point or structure-by-structure differenced to obtain a quantitative and enhanced image. Even

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if one were to argue that the first scan of Bartzokis could be considered a single scan at a single magnetic field strength, Bartzokis nonetheless requires performance of a second scan at a different magnetic field strength prior to any analysis/characterization. In contrast, Applicants claimed technique is able to analyze a single image data set to characterize regions of interest resulting in a greatly simplified imaging procedure.

For at least these reasons, Applicants submit that Claims 1, 11 and 28 are not anticipated by the Bartzokis reference. Claims 2-4, 7, 10, 12-14, 20, 21, 23, 29 and 32-33 depend directly or indirectly from claims 1, 11 and 28, respectively. Accordingly, Applicants submit that claims 2-4, 7, 10, 12-14, 20, 21, 23, 29 and 32-33 are allowable by virtue of their dependency. Claims 9 and 18 have been canceled thereby rendering the rejection to these claims as moot. Thus, it is respectfully requested that the rejection of Claims 1-4, 7, 10-14, 20, 21, 23, 28, 29, 32-33 under 35 USC §102 be withdrawn.

Applicants respectfully traverse the rejection of claims 5, 15-17 and 24-27 under 35 USC 103(a) over Bartzokis in view of Sibbitt. Claims 5, 15-17 and 24-27 depend from claims 1 and 11. As discussed with reference to the rejection under 35 USC 102(a) over Bartzokis, Applicants submit that the Bartzokis reference does not show, teach or disclose Applicants' claimed invention. The Sibbitt reference does not overcome the deficiencies of Bartzokis. Sibbitt merely discloses a method for determining the presence of central nervous system disease or injury by comparing T2 measurements obtained by MRI. Nowhere does the Sibbitt reference reference, teach or suggest acquiring a single magnetic resonance (MR) image data set at a single substantially high magnetic field strength and analyzing the single image data set to characterize regions of interest within the MR single image data in order to indicate a given disease. Applicants respectfully submit that no reasonable combination of the Bartzokis and Sibbitt references, taken alone or in combination, would teach or suggest each and every element of claims 1 and 11, and are therefore patentable over the Bartzokis and Sibbitt references. Claims 5, 15-17 and 24-27 recite further inventive features and therefore are similarly patentable.

Therefore, as stated above, the present invention, as claimed in Claims 5, 15-17 and 24-27 are allowable over the combination of the Bartzokis and Sibbitt references. Thus, it is respectfully requested that the rejection of claims 5, 15-17 and 24-27 under 35 USC §103(a) be withdrawn.

Applicants respectfully traverse the rejection of claims 6, 8, 19, 22, 30 and 31 were rejected under 35 USC §103 (a) on Bartzokis for similar reasons. As stated above with reference to the rejection under 35 USC 102(b), the Bartzokis reference does not show or teach Applicants recited invention as claimed in independent claims 1, 11 and 28 from which these rejected claims depend. Claims 6, 8, 19, 22, 30 and 31 recite further inventive features and therefore are

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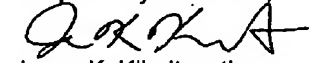
similarly patentable.

Therefore, Applicants' respectfully submit that claims 6, 8, 19, 22, 30 and 31 are allowable and requests that the rejections under 35 USC §103 (a) be withdrawn.

In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below. Should the Examiner maintain his rejections, Applicants' representative respectfully requests an interview with the Examiner.

Respectfully submitted,


Jason K. Klindtworth
Reg. No. 47,211

General Electric Company
Building K1, Room 3A52A
Schenectady, New York 12301

3/14, 2008

Telephone: (518) 387-7360 or
(518) 387-7122

Attachment: Request for Continued Examination